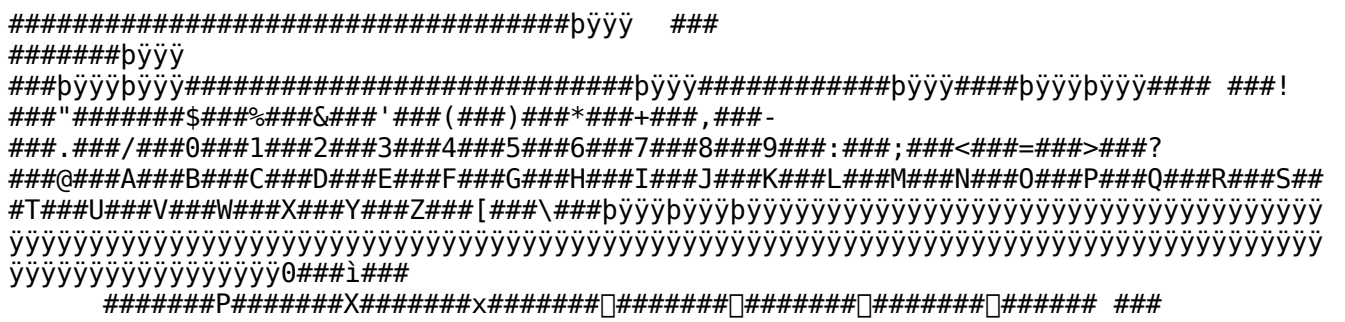

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#+###########ÿ#######m###########ÿ###################ÿ###Å0##Ç#####
#####ÿ###########5#######,##M1 = 166 pentium NT 4.0 Workstation
(Laptop)¾###################'##########M2 = 233 pentium NT 4.0
Server¾###################'##########M3 = 133 pentium NT 5.0
Server¾###################)####### ##M4 = Sun Ultra II Solaris 2.5.1
¾###################$##########Orbix 2.3c includes Patch
9¾#############################Orbix Web 3.0¾###################
%##########Visigenic VisiBroker C++ 3.2¾###################&#    ########Visigenic
VisiBroker Java 3.2¾### #############¾#
```

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###d###########vInformal Timing Studies on Orbix, VisiBroker, and DCOMJohn McKim
and Lowell RosenThe MITRE Corporation16 April 1998#
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Obtain informal performance comparisons between VisiBroker and Orbix Static Invocation Interface (SII) two-way LatencySII one-way LatencyVarying the number of objects createdObtain similar timing figures for DCOM on Windows and Unix platforms - little performance data currently available. Test OrbixÕs CORBA/COM bridge. Determine limitations of products to understand the best ways to use CORBA and DCOM.Verify other research and performance.Doug Schmidt, Orfali/Harkey, etc.
#

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############Qÿl####U#########ÿê##ÿú########□Observations1 of scaling problems with
CORBA objects.Limited DCOM performance data.New products, versions, and patches
available.#
```

###ÿ¥#ÿÿ#d#########W########L#□###þúö¤##
\############Qÿl####U########ÿê##ÿú#######;6 Computers in various combinations NT 4.0 Workstation - 166 MHz PentiumNT 4.0 Workstation - 300 MHz Pentium IINT 4.0 Server - 233 MHz Pentium IINT 5.0 Server (Beta 1) - 133 MHz PentiumSolaris 2.5.1 Sun UltraSPARC II (200 MHz) Solaris 2.5.1 Sun SPARC 2010 Mbit/second Ethernet with normal corporate loadingr#

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###########################################ÿ¥#ÿÿ#d#########W########L#□###û□öt##
,############Qÿ-#### ########ÿê##ÿú########□Middleware Components:Visigenic ORB
(Visibroker) C++ and Java, version 3.2Iona Orbix C++, version 2.3c, patch 7
OrbixWeb, version 3.0, patch 1 (patch 2 available)Orbix Desktop for CORBA/COM
Bridge (2.3c) - VisiBroker Bridge not available for 3.2DCOM/COM - NT 4.0
Workstation and Server (SP3)Software AG DCOM for Unix (Solaris 2.5.1)Compilers:
SunPro 4.2, Visual C++ 5.0, Visual Basic 5.0, JDK 1.1.5#
```

#######################################ÿ¥#ÿÿ#d#########W########L#□###ûj÷##& □
############Qÿl####U########ÿê##ÿú#######ñThe test object (Similar to Orfali/Harkey)Server: Create Count object - Count object contains counter attribute and increment methodClient: Bind to Count object, initialize counter, invoke increment method 1000 times, calculate average method invocation. Orbix / Visibroker testsSII Two-Way SII One-WayVary the number of objects created in the server (scalability)IIOP interoperability between VisiBroker and OrbixCOM/CORBA bridging DCOM using a Count object created from a similar MIDL.##

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####ÿê##ÿú####Ì##ÿ]÷j##öÿÿ####ÿÿ#####ÿ¥#ÿÿ#d#########d###########·Visigenic ORB appears to have 2-3 times performance advantage over Orbix for parameterless SII method invocations. InterORB timing (not shown) is consistent with individual ORB tests.¶#

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ÿÿ####ÿÿ#####ÿ¥#ÿÿ#d#########d###########SOne-Way SII is 3-4 times faster than
Two-Way for parameterless object invocations. ¶#
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      \ÿÿ####ÿÿ####Qÿ-#ÿÿ# ########ÿê##ÿú#########Milliseconds (msec) per
invocation using a 233 MHz NT Client Platform and a UltraSPARC Server Platform.SII
Two-Way method invocationOrbixWeb Java  3.756 msec      VisiBroker Java   1.542
msecOrbix C++           2.709 msec      VisiBroker  C++   0.911 msec    #
```

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###(#########(#################(#########(#ÿ¥#ÿÿ#d#########W########L##########÷##Á#
############Qÿ-#### #########Z##ÿú#######Examples IonaÕs Orbix Desktop 2.3Visual
Edge Inc.-based products (Expersoft, Visigenic, HP, DEC/BEA Systems, others)Custom
Wrapper#
```

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###########################################ÿ¥#ÿÿ#d#########d########Ì#□####□öÚ###Æ
ÿÿ####ÿÿ#####ÿ¥#ÿÿ#d#########d###########VA COM/CORBA bridge does not add a
significant performance overhead for simple objects.#
```

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##########################################ÿ¥#ÿÿ#d#########W#########L#□###û:ö¤#¦#ü
############Qÿ-#### ########ÿê##ÿú#########Solaris 2.5.1 (server)C++ Client (CORBA
only) 2.71 msec per invocationVisual Basic Client via Orbix Desktop Bridge)  2.85
msec per invocationNT 4.0 (server)C++ Client (CORBA only)2.69 msec per invocation
Visual Basic Client via Orbix Desktop Bridge2.84 msec per invocation#
```

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#####d#########G#ÿ¥#ÿÿ#d#########d########L#□####Zöt##     ,############Qÿ-#### ##
######ÿê##ÿú#######`Software AG DCOM for Solaris 2.5.1 with SPARC 20 (Server)C++
client  ~15 msec per invocation.#
```

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###########################################ÿ¥#ÿÿ#d#########W########L#□###ûúöÔþ6
□############Qÿ-#### ########ÿê##ÿú#######pNT 4.0  (Server)C++ client  0.87 msec
per invocationVB client   0.94  msec per invocation (early binding)   #
```

###ÿ¥#ÿÿ#d#########W########L#□###ûÊöt#æ\############Qÿl####U########ÿê##ÿú########Visigenic ORB appears to have 2-3 times performance advantage over Orbix for parameterless method invocations for 1 and 2-way SII.The number of objects currently open and bound by a client does not reduce invocation performance, where the number of objects is less than 10,000.One-way SII is 3-4 times faster than two-way SII for parameterless object invocations for both ORBs.Scalability of these products have improved significantly with newer versions. Older versions would crashed with 1000 objects open and multiple invocations1.û#

```
###########################################ÿ¥#ÿÿ#d#########W########L#□###ûÊöD#F
,############Qÿl####U########ÿê##ÿú#######□Results differ from previously
published research:Significant performance differences between VisiBroker and
OrbixMore robust for large number of objectsNewer multi-threaded versions may be
responsible.VisiBroker/Orbix interORB timing is consistent with individual ORB
tests.  Java/C++ interORB testing is consistent with individual ORB tests.No
Problems using NT 5.0, Beta 1.#
```

##ÿ¥#ÿÿ#d#########W#########L#□###ûúö¤#&\############Qÿl####U#########ÿê##ÿú########oFor Windows configurations, the measured performance and ÒscalabilityÓ of the Visigenic ORB (SII) and DCOM are similar. Initial results indicate that the current version of DCOM for Unix may be slow. Additional testing is needed to verify this.The overhead for the Orbix COM/CORBA bridge is small for simple objects. ÒScalabilityÓ for the bridge was not tested.##

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ÿÿ####ÿÿ####Qÿl#ÿÿ#U########ÿê##ÿú#######□How do ORBs react to many and large
parametersDynamic Invocation Interface (DII)Investigate CPU time in addition to
elapsed time.Perform VisiBroker and Orbix secure socket layer (SSL) timing tests
Perform Event and Naming service timing testsVisigenic COM/CORBA bridgeOrbixCOMet
DCOM/CORBA bridge (beta)Generic performance test driversDII COE Distributed
Applications Series Report#

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#########ÿ¥#ÿÿ#d#########d############M1 =  166Mhz Pentium NT 4.0WorkstationM2 =
233 Mhz Pentium NT 4.0 ServerM3 = 133 Mhz Pentium NT 5.0 ServerM4 = Sun Ultra II
(200 Mhz)Elapsed Times are in Milliseconds per invocationSingle Object in server
Object method called 1000 times, times are        average invocation.#
```

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##    Helvetica#########
#p#.#########@#@#@#@#####(#Xö8#jmckim@mitre.org######*y#lrosen@mitre.org#####*y"In
support of AITS JPO and DII
COE# #□# #□######ÿÿ#########1ú¹÷¬#O#]##############ÿÿ#,#####Times#####
#□#####(ûäø##Informal Timing Studies ######(ýdù##on Orbix, VisiBroker,
######(þäü;#and DCOM#######□#####(# ûÜ#John McKim and Lowell Rosen#####(#□üÜ#The
MITRE Corporation#####(# þD16 April 1998# #□# #□#ÿÐÏ#à¡±#Eric
HughesÐÏ#à¡±#á#################;##ÿþ#
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